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AMSAT NEWS SERVICE
ANS-026

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

In this edition:

* AMSAT-NA will be at HamCation 2014!
* AMSAT-NA Updating Their List of Current AMSAT-Related Nets
* FUNcube at National Student Space Conference
* Radio amateurs receive Rosetta signals
* Northern Virginia-Maryland-Washington, DC AMSAT Events
* $50SAT PocketQube two months after launch
* Upcoming AMSAT Events
* ARISS News
* Satellite Shorts from All Over

SB SAT @ AMSAT $ANS-026.01
ANS-026 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 026.01
   From AMSAT HQ SILVER SPRING, MD.
January 26, 2013
To All RADIO AMATEURS
BID: $ANS-026.01

AMSAT-NA will be at HamCation 2014!

AMSAT-NA will be at the 2014 Orlando HamCation on Friday through Sunday, 7-9 February 2014. Stop by the AMSAT booth where John Papay, K8YSE will be demonstrating his two remote satellite stations. Don’t miss the AMSAT Forum on Saturday, February 8th. It will be moderated by Dave Jordan, AA4KN and will be located in the Children’s Safety Village, Classroom I, 1:45 – 2:45 PM. Speakers will include AMSAT-NA President Barry Baines, WD4ASW on AMSAT’s activities, Lou McFadin, W5DID on the new HamTV experiment on the International Space Station, and Drew Glasbrenner, KO4MA, AMSAT-NA Vice President for Operations on AO-73 and other new amateur satellites. Drew will also will be on hand both Saturday and Sunday conducting portable satellite contacts

and fielding questions from the crowd.

FLASH: Drew and John will be operating as W1AW/4 for the portable demos from the HamCation!

[ANS thanks AMSAT-NA for the above announcement]

AMSAT-NA Updating Their List of Current AMSAT-Related Nets

AMSAT-NA is updating their list of AMSAT and AMSAT-related nets, and needs your help. The current list may be found on AMSAT.ORG under the Services Menu. The information is somewhat dated. Please review the list of nets, and send corrections and deletions to AMSAT Director-Field Operations, Patrick Stoddard, WE9EWKWD9EWK(a)AMSAT.ORG.

We are looking for nets on all modes, including Echolink and D-Star.

[ANS thanks AMSAT-NA for the above announcement]

FUNcube at National Student Space Conference

David Johnson G4DPZ will be giving a presentation on the FUNcube-1 (AO-73) spacecraft to the National Student Space Conference being held at the University of Leicester on March 1-2.

David is a software engineer and committee member of AMSAT-UK. He writes Open-Source satellite Ground-Segment and orbit prediction software, and has been involved in many amateur satellite projects over the past 35 years including PCSAT-2 (flew on the ISS), GENSO Network, AmsatDroid prediction App, STRaND-1 smartphone nanosatellite, and FUNcube Data Warehouse.

His talk will cover the AMSAT-NL/AMSAT-UK educational amateur satellite project – FUNcube, an educational single CubeSat project with the goal of enthusing and educating young people about radio, space, physics and electronics. He will give a short history of the project and the work leading up to the launch, share the thrill of launch day, and the current and future plans for operation of the satellite.

Also at the conference will be speakers from the UK Space Agency, Reaction Engines, and HE Space.

Conference Speakers
http://ukseds.org/nssc2014/speakers.php

[ANS thanks AMSAT-UK for the above announcement]

Radio amateurs receive Rosetta signals

James Miller G3RUH reports reception of the Rosetta spacecraft signal at a distance of 805 million km from Earth using the 20 metre dish at the Bochum amateur radio facility

On the AMSAT Bulletin Board (AMSAT-BB) James Miller G3RUH writes:
Just a quick note about Rosetta X-band. I checked it this morning from Bochum.

2014 Jan 21 [Tue] 0934 utc
AZ 172°
El 11°
R 805 Million km
CNR 25.5 dB(Hz)
QRG 8421.786900 MHz at the spacecraft

Rosetta is about 14 dB weaker than Stereo A/B.
The system at Bochum has a G/T approx 40 dB(1/K).
Bertrand Pinel F5PL, located near Castelnaudary, France, 65km from Toulouse, successfully tracked Rosetta on January 21, 2014 at 10:00 UT, using a 3.5m dish antenna,

see
http://blogs.esa.int/rosetta/2014/01/22/radio-amateur-diy-rosetta-tracking/

ESA Rosetta Blog
http://blogs.esa.int/rosetta/

ESA on Facebook
https://www.facebook.com/EuropeanSpaceAgency

[ANS thanks AMSAT-UK for the above announcement]

Northern Virginia-Maryland-Washington, DC AMSAT Events

Maryland-DC AMSAT Area Coordinator Pat Kilroy, N8PK says that two opportunities are coming for AMSAT to make a splash in the amateur radio community. Pat hopes as many Northern Virginia, Maryland and Washington, DC AMSAT members as possible come out for these events to show amateur radio in space to the public and fellow amateur operators.

Vienna, Virginia

Sunday, February 23, 2014 - The Vienna Wireless Winterfest
http://www.viennawireless.org/winterfest.php

Steve Greene, KS1G, of Herndon, Va. will be leading an effort to staff an impressive AMSAT booth as well as provide a forum and a *possible* satellite demo. But he needs help from the local AMSAT guys. Please contact Steve at ks1g(a)amsat.org to offer your time and support.

Timonium, Maryland

Saturday, April 5, 2014 - The Greater Baltimore Hamboree and
Computerfest 2014 including the Maryland Emergency Preparedness
Expo 2014
http://www.gbhc.org/

Pat Kilroy, N8PK is organizing the AMSAT booth and display for this event. Conditions permitting the demonstrations may include flying a small experiment on a high-altitude balloon. Pat is planning to staff a three table AMSAT display indoors. Contact Pat via e-mail at n8pk(a)amsat.org to volunteer and offer your ideas for the display.

[ANS thanks Pat Kilroy, N8PK for the above information]

$50SAT PocketQube two months after launch

Michael Kirkhart KD8QBA reminds us that the PocketQube $50SAT has now been operating for two months. He writes:

It has now been 2 months since the launch of $50SAT into its 625 km (approximate) sun-synchronous orbit, and as of this morning [Tuesday January 21], it is still operating.

It is getting cold again in EN82 land, so it is not likely I will be able to gather RTTY telemetry during the next few days, as my trusty netbook will not likely be able to deal with the cold for very long. Hopefully, everyone else can “pick up the slack” for me. I will still go out and monitor passes, provided it does not get too cold.

Since it was pretty cold this morning (about -12 to -13 degrees C), I chose not to record the pass at 15:24 UTC (10:28 AM local time). Instead, I monitored it using my FT-60. At about 15:36 UTC, I heard the codespeed on the FM Morse beacon drop, which indicates the availability of solar power. Using gpredict, I estimated the latitude of the satellite sub-point (the point on the Earth directly underneath the satellite) to be about 24 degrees N. Today, the sun is directly over 20.4 degrees south latitude (23.5 degrees * sin(270 + 30), as it has been about 30 days since the winter solstice). At the time I heard the beacon, the angle of $50SAT normal to the sun (assuming the passive magnetic stabilization is working) would be about 24 – (-20.4), or about 44.4 degrees. This means the solar radiation intensity is about 70% of its maximum value, which means the solar power generating capacity will be anywhere from 50% to 70% of its maximum, depending on whether one or two panels are facing the sun. But since I did not collect telemetry, I have no values for comparison.

I was able to collect RTTY telemetry on Sunday and Monday, and here it is:

2014-01-
19,16:34,$$$$50jAT,128,,467,,,52,3,,21,142,82,,102,305,3662,*43
2014-01-19,16:36,b50SAT.128,,467,,,54,3,,21,139,82,,102,305,3683,*46
2014-01-19,16:39,$50SAT,128,,467,,,59,3,,21,132,83,1223cr}

2014-01-20,16:55,50SAT,128,,471,,,60,3,,21,132,83,,122,309,3683,*42

Michael Kirkhart KD8QBA

$50SAT team

$50SAT is one of the smallest amateur radio satellites ever launched at 5x5x7.5 cm and weighs only 210 grams. Transmitter power is just 100 mW on 437.505 MHz (+/-9 kHz Doppler shift) FM CW/RTTY. It uses the low cost Hope RFM22B single chip radio and PICaxe 40X2 processor.

$50SAT has been a collaborative education project between Professor Bob Twiggs, KE6QMD, Morehead State University and three other radio amateurs, Howie DeFelice, AB2S, Michael Kirkhart, KD8QBA, and Stuart Robinson, GW7HPW.

Further information in the $50SAT Dropbox
https://www.dropbox.com/sh/l3919wtfiywk2gf/-HxyXNsIr8

There is a discussion group for $50SAT
http://groups.yahoo.com/groups/50dollarsat/

50DollarSat
http://www.50dollarsat.info/

[ANS thanks AMSAT-UK for the above information]

Deploying software updates to ArduSat in orbit

Radio amateur Jonathan Oxer VK3FADO gave this Keynote presentation on the latest developments in the ArduSat CubeSat project to the 2014 Linux conference in Perth, Western Australia.

Jon has been hacking on both hardware and software since he was a little tacker. Most recently he's been focusing more on the Open Hardware side, co-founding Freetronics as a direct result of organising the first Arduino Miniconf at LCA2010. His books include "Ubuntu Hacks" and "Practical Arduino".

Jon has been variously referred to as Australia's geekiest man and as a cyborg-in-progress. As part of his "SuperHouse" home automation series, Jon has taken keyless entry to an all new level by embedding an RFID tag into his arm using a vet's chipping tool.

Recently he has been working on ArduSat, a satellite that aims to give hobbyists, students and space enthusiasts an opportunity to design and run their own experiments in space. By choosing a standardised platform based on the hugely popular Arduino hardware design, ArduSat allows anyone to develop and prototype experiments at home using readily accessible parts and all based on a simple open source software environment.

ArduSat Open Source Ham Radio CubeSats
http://amsat-uk.org/2013/08/09/ardusat-open-source-ham-radio-cubesats/

Linux Conference Perth Jan 6-10
http://lca2014.linux.org.au/

Linux Australia
http://www.linux.org.au/

[ANS thanks AMSAT-UK for the above information]

Upcoming AMSAT Events

Friday and Saturday, 14-15 February 2014 – Yuma Hamfest at Yuma County Fairgrounds in Yuma AZ (south of I-8, along 32nd Street near Yuma International Airport and MCAS Yuma). AMSAT will have a table in the main hall at the hamfest, and satellite demonstrations outside the hall are planned.

Sunday, 23 February 2014 – Vienna Wireless Winterfest at Vienna VA. AMSAT will have a table at this hamfest, Steve Greene KS1G will lead a forum, and there may be satellite demonstrations during this event.

Saturday, 15 March 2014 – Scottsdale Amateur Radio Club's Springfest in Scottsdale AZ (northeast of Phoenix). AMSAT will have a table at this hamfest, and satellite demonstrations are planned. Demonstrations at this hamfest will be done using the call sign W1AW/7 as part of the ARRL centennial commemorations, and QSLing will be handled by ARRL.

Saturday, 29 March 2014 – Radio Society of Tucson's 2014 Hamfest in Tucson AZ. AMSAT will have a table at this hamfest, and satellite demonstrations are planned.

Saturday, 5 April 2014 – The Greater Baltimore Hamboree and Computerfest 2014, including the Maryland Emergency Preparedness Expo 2014, at the Maryland State Fairgrounds in Timonium MD. AMSAT will have a booth at this hamfest, and other AMSAT-related events may be planned.

Monday, 28 April 2014 – presentation at Franklin County Amateur Radio Club meeting in Greenfield MA by Barry Baines WD4ASW (AMSAT President)

Saturday, 3 May 2014 – Cochise Amateur Radio Association's Larry Warren Hamfest in Sierra Vista AZ (southeast of Tucson) – AMSAT will have a table at this hamfest, and satellite demonstrations are planned.

Saturday, 7 June 2014 – Kachina Amateur Radio Club's White Mountain Hamfest in Show Low AZ (eastern Arizona, south of US-60/AZ-77/AZ-260) – AMSAT will have a table at this hamfest, and satellite demonstrations are planned.

Friday and Saturday, 13-14 June 2014 – Ham-Com in Plano TX (north of Dallas)

Thursday through Sunday, 17-20 July 2014 – ARRL Centennial Convention in Hartford CT. AMSAT will host a day-long Satellite Workshop on Thursday, and have a booth at the convention along with an AMSAT Forum and demonstrations throughout the convention.

Saturday and Sunday, 30-31 August 2014 – Shelby Hamfest in Shelby NC (west of Gastonia and Charlotte) – Barry Baines WD4ASW (AMSAT President) will host an AMSAT Forum on Saturday of this weekend

[ANS thanks AMSAT-NA for the above announcement]

ARISS News

Uncoming ARISS contact with Indiana Area School District, Indiana, PA, telebridge via W6SRJ Contact is a go for:
Tue 2014-01-28 13:30:33 UTC 62 deg

An International Space Station school contact has been planned with participants at the Indiana Area School District, Indiana, PA, USA on Tuesday January 28th. AOS is anticipated at 13:30 UTC.

The duration of the contact is approximately 9 minutes and 30 seconds. Contact times are approximate. The contact will be a telebridge between NA1SS and W6SRJ in California. The contact should be audible over the west coast of the U.S. Interested parties are invited to listen in on the 145.80 MHz downlink. The contact is expected to be conducted in English.

Indiana, Pennsylvania is a rural town with a population of 32,000 that is situated sixty miles northeast of Pittsburgh. Our residents enjoy the convenient proximity to a major city, as well as the community-feel and lifestyle of a small town. The Indiana Area School District has provided a dynamic high-quality educational program for over 170 years. Our four K-5 elementary schools, one 6-8 junior high school and one 9-12 senior high school serve 2800 students district wide. In addition to distinguished academic achievement, our students' activities include fundraising for a variety of charitable causes, school and community leadership, as well as setting new standards for excellence in both academic and athletics competitions. In fact, we currently boast two National Merit Scholarship semi-finalists and a third honoree. We are proud of our student's accomplishments!

Our dynamic school programs are part of the building blocks for student success. Beginning with a commitment to early childhood and pre-K programs to increase student learning readiness, to the rigor and challenge of enrichment options at the elementary school level. Our secondary programs include an array of Advanced Placement and STEM course offerings, dual enrollment options, and our own cyber school option for students. Many local residents will tell you, "Indiana, PA is a great place to raise a family." This is true because we blend the small town community with a school system that continually strives to provide cutting-edge programs that prepare students to be successful citizens. .

Indiana Area School District, Indiana, PA, telebridge via W6SRJ (***)
Contact is a go for: Tue 2014-01-28 13:30:33 UTC 62 deg (***)

Proposed questions generated by the Indiana Area School District students:

1. How many countries are involved in the International Space Station?
2. Can you feel the cold of space through your space suit?
3. Do you believe that there is intelligent life thriving somewhere in the universe?
4. Does being weightless have any long-term effects on the human body?
5. When do you think we will have the technology for astronauts to travel farther in space?
6. Which of the research projects that you are working on right now, has the most scientific potential?

7. Who has the most control over the spacecraft? The astronauts, stabilization auto-pilot, or mission control?
8. What is the scariest thing that has ever happened to you in space?
9. Are space suits comfortable?
10. How do you help your families deal with the dangers of your job?
11. What is the most common misconception teenagers may have about space?
12. Do you have any anxiety because you are nowhere near the safety of Earth?
13. What college, and what major, would you recommend for someone to become an astronaut?
14. What is the most interesting, or strangest, thing you have seen in the space station?
15. What surprised you the most when you first arrived in space?
16. What is your theory of life on other planets?

ARISS is requesting listener reports for the above contacts. Due to issues with the Kenwood radio that are not fully understood at present, the Ericsson radio is going to be used for these contacts. ARISS thanks everyone in advance for their assistance. Feel free to send your reports to aj9n(a)amsat.org or aj9n(a)aol.com.

Audio from this contact will be fed into the: EchoLink *AMSAT* (101377) and IRLP Node 9010 Discovery Reflector.

Streaming Audio will be provided at:
https://sites.google.com/site/arissaudio/

Audio on Echolink and Web stream is generally transmitted around 20 minutes prior to the contact taking place so that you can hear some of the preparation that occurs. IRLP will begin just prior to the ground station call to the ISS.

Please note that on Echolink there are automatic breaks of 1.5 seconds in the audio transmission. These occur every 2.5 minutes during the event. Breaks on IRLP are manual and occur approximately after every third question.

Successful Contacts:

January 18, 2014
A telebridge contact via station K6DUE with Wallingford STEM Academy/Town of Wallingford, CT, USA was successful Saturday, January 18th. Nineteen questions were answered by astronaut Koichi Wakata,

To read a local news story:
http://www.myrecordjournal.com/wallingford/wallingfordnews/34370
90-129/students-talk-to-astronaut-aboard-the-space-station.html

Here is a tweet astronaut Wakata sent after the contact:
https://twitter.com/Astro_Wakata/status/424806909510549504

Wallingford STEM Academy is a community based and family oriented organization the excites students about science, technology, engineering and mathematics. This program, previously known as the Young Astronaut Club of Wallingford and founded in 2000, has been providing STEM enrichment for students in grades 4 through 8 for over thirteen years through Wallingford Youth and Social Services.

The Wallingford STEM Academy is a collaborative partnership between the Spanish Community of Wallingford (SCOW), the Town of Wallingford Youth and Social Services Department (WYSS), the Wallingford

Education Association (WEA).
STEM Academy branches in Wallingford, and Hamden, are the flagship programs for CEA's STEM Education Initiative. We currently serve the Spanish Community of Wallingford (SCOW) and the general population. 40% of our STEM Enrichment Academy is comprised of students from the Spanish community and 40 % of our students are girls interested in STEM education. Our weekly meetings are conducted at the Spanish Community of Wallingford Great Room and in our STEM Education Classroom next to SCOW.

Since 2005, a companion project to Wallingford STEM Enrichment Academy is the Wallingford Family Science and STEM Night Series. At least twice a month, we organize and implement family oriented Science and STEM Family Nights in Wallingford. These events range from evening programs, daytime vacation programs, hands-on investigations, assembly style programs, and night sky observations. The purpose of this organization is to deepen student, and family, understanding of STEM concepts as a compliment to an existing inquiry based STEM curriculum in Wallingford. Our major funders for both STEM Academy and Wallingford Family STEM Nights are the Wallingford Rotary Club's Wallingford Foundation, 3M Charitable Contributions and the Connecticut Education Association.

January 17, 2014
A direct contact with students at Collège Les Gondoliers, La Roche sur Yon, France with astronaut Koichi Wakata was successful Friday, January 17th at 09:51:13 UTC 34 deg. Wakata answered 17 questions in English. His answers were later translated to French for the audience of 200 students, teachers, media and radio amateurs in the gymnasium.

For a video of the contact conducted in English:
http://www.youtube.com/watch?v=iDbcHY6uKEY

Local news coverage:
http://www.lejournaldupaysyonnais.fr/2014/01/17/allo-liss-ici-les-gondoliers-over/?utm_source=rss&utm_medium=rss&utm_campaign=allo-liss-ici-les-gondoliers-over

Les Gondoliers Secondary School, with its 500 pupils -aged 11-15- is located in Vendée, 70 km south of the city of Nantes, where famous Jules Verne author was born . At the end of the last year, the pupils take an exam called "Diplôme National du Brevet". Our Astronomy Club has resumed its activities this year with the objective to enter in contact with the ISS. The starting point has been the visit of the exhibition "Voyages planétaires" (Planetary spaceflights), in Nantes, during the International Planetary Science Congress. Various astronomy and amateur radio activities will be organized, with the help of members of the association of "radioamateurs of Vendée", who will come to our school to display their activities and provide us with the tools that will be necessary to get in contact with the ISS.

PLEASE CHECK THE FOLLOWING FOR MORE INFORMATION ON ARISS UPDATES:

Sign up for the SAREX maillist at
http://www.amsat.org/mailman/listinfo/sarex

Visit ARISS on Facebook. We can be found at Amateur Radio on the International Space Station (ARISS).

To receive our Twitter updates, follow @ARISS_status

A planned event for:

1. A contact with students at Fort Belvoir Elementary school in Fort Belvoir MD, USA, sponsored by Marymount University in Arlington, VA, USA that was planned for Fri 2014-01-24 will be rescheduled.

ARISS is an international educational outreach program partnering the participating space agencies, NASA, Russian Space Agency, ESA, CNES, JAXA, and CSA, with the AMSAT and IARU organizations from participating countries.

ARISS offers an opportunity for students to experience the excitement of Amateur Radio by talking directly with crewmembers on-board the International Space Station. Teachers, parents and communities see, first hand, how Amateur Radio and crewmembers on ISS can energize youngsters' interest in science, technology, and learning. Further information on the ARISS program is available on the website
http://www.ariss.org/
(graciously hosted by the Radio Amateurs of Canada).

[ANS thanks ARISS for the above update]

Satellite Shorts from all over

Funcube - an observation from the AMSAT-BB

Message: 6
Date: Thu, 23 Jan 2014 13:43:03 -0500
From: John Papay <fl(a)papays.com>
To: amsat-bb(a)amsat.org
Subject: [amsat-bb] Funcube - an observation
Message-ID: <673369.9651.bm(a)smtp120.sbc.mail.gq1.yahoo.com>
Content-Type: text/plain; charset="us-ascii"; format=flowed

Most everyone knows about Funcube and how successful it has been. If you look at the Funcube Warehouse page you will see that many hams around the world are uploading data from the satellite every day. As of this morning I counted 493 different ground stations and they have uploaded more than 1.15 Million data packets since late November. About half of the stations are located in the US and Britain. The other half are spread out around the world showing that this is not just something that has interested those in the UK. Thirty-three stations have each uploaded more than 10,000 packets!

In addition I have to give accolades to Mark Spencer, WA8SME, at the ARRL for his excellent paper describing Funcube, its experiments and how to receive it and make sense of the data. Most everyone on the birds asks about what antennas work best. Mark seeks to quantify the performance of some common antennas like the M2 circular polarized beam, Arrows on rotors or fixed, with or without preamps, 5/8 wave and 1/4 wave ground planes. He does that by comparing the number of packets received on each antenna during a pass. The results are quite interesting. You can download the paper at:
http://www.arrl.org/files/file/ETP/FUNCube%20Guide.pdf

Mark is the reason that the Teacher's Institute has been so successful. If you operate on the satellites you probably have heard his student teachers making contacts on the birds. When he was living on the west coast he went to DN01 and DN00 and put them on the

birds for those of us that chase grids.
After moving to the east coast he has continued the work with satellites at the League and has developed hardware for satellites including the FT817 interface and most recently a portable az/el rotator system. We see articles about satellites in QST Magazine on a regular basis and I'm sure it is because of his representation at the League. The younger generation is the future of AMSAT and Mark's work is certainly making a difference in terms of introducing them to satellites.

The Funcube team and G6LVB have certainly encouraged our young people to get interested in ham radio and satellites. The Funcube SDR was a great fundraiser and facilitated students in their quest to receive data from space and learn from the experiments on board. Congratulations to everyone involved in the highly successful Funcube project.

73,
John K8YSE

[ANS thanks John, K8YSE and AMSAT-BB for the above short]

/EX

In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73,
This week's ANS Editor,
Joe Spier, K6WAO
k6wao at amsat dot org